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EXAMINER	
D'ANIELLO, NICHOLAS P	
ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent-ch@btlaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/569,711	KRAL ET AL.	
	Examiner	Art Unit	
	Nicholas P. D'Aniello	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL REJECTION

Response to Amendments

The amendment filed July 15th 2008 is acknowledged. Claims 1-25 remain pending in the application. The rejection of the claims under 35 USC § 102 and 112 has been withdrawn in view of the amendment; however, the rejection of the claims over the prior art of record under 35 USC § 103 has been modified, necessitated by the amendment, and still stands. See the response to arguments for clarification. A rejection using a new reference has also been employed (unless otherwise noted, all references are of record).

Claim Rejections - 35 USC § 112

- The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The addition of "preserve the parent metal of the rail" in claim 24 or "while metallurgically preserving the parent metal of the rail" in claim 20 are not found in the original disclosure and no support has been found in the specification or drawings.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1, 7 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valley et al. (US Patent No. 6,515,249) in view of Moller et al. (US Patent No. 4,875,657) and Klumpes (US Patent No. 4,068,111).

Valley et al. teach a method of repairing a rail (1) by first identifying the rail defect (2) (preferably by an ultrasonic rail testing vehicle, 10) and then removing a portion of the defect (2) using a cutting vehicle (15) and then welding the abutting section together to bond the rail (column 3, lines 22-60). Independent claim 1 differs from the reference in calling for filling the void with molten metal and maintaining continuity in the base and a portion of the web. However, it would have been obvious in the art to fill the void with molten metal and that a defect in the head would only require a portion of the head to be removed (maintaining continuity in the base and a portion of the web) because: a) Klumpes teaches a method of repairing defects in thick metal work-pieces where the only area surrounding the defect is removed and then filled with molten material (column 1, lines 58 to column 2, line 19); and, it is known in the art to repair a defect in the head of a rail where only a portion of the head needs to removed and then filled with a molten material as exemplified in the teachings of Moller et al. (as applied in previous

rejection). The incentive for modifying the process of Valley et al would have simply been to obtain the self-evident advantage of removing only small portion of a rail thereby minimizing the cost of repair by reducing the amount of molten material which would be needed for repairing a defect portion of a rail.

In regard to the ***amendment***, the rail of Valley et al. is metal, and it is the Examiner's position (and a natural property of molten metal) that fusion will occur between the molten metal and the parent metal as the process occurs at an elevated temperature where the molten metal is hot enough to first liquefy and remove the defect (although the references are not specifically concerned with the particular steel, steels do not melt until at least 1200ºC, i.e. an elevated temperature enabling fusion). The process of boring a hole such as the process Klumpes exposes the parent metal with opposed substantially parallel walls with a floor extending there between. This reasonable interpretation is made taking the position that a cylindrical bore has an almost infinite number of parallel walls with a floor in between such as seen in figures 2 and 3 of Klumpes.

Regarding **claim 7**, although not specifically mentioned by Valley et al., it would have been obvious in the art that solidified weld material should be free of inclusions because inclusions such as air pockets are known to reduce the structural strength of metallic members.

In regard to **claims 10-12**, Valley et al. teaches that the removal of the defect may be done by abrasive saw (grinding), a cutting torch or reciprocating saw (cutting). All of which are a form of machining.

Regarding **claim 13**, as seen in figure 1 of Valley et al. the interface between the rails (33) is a flat surface and the void between (although not drawn to a thickness) would be a 2 dimensional slot shape and includes a lower portion (33 or 34) which forms a weld root.

In regard to **claims 14 and 15**, Valley et al. does not specifically teach a rail where the weld root is bevel shaped or J-shaped, however it would have been obvious in the art to make a weld root with such a shape because Klumpes et al. teaches a making a cavity (4, figure 2) with that would be considered beveled or J-shaped.

3. Claims 2, 3 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valley et al. (US Patent No. 6,515,249), Moller et al. (US Patent No. 4,875,657) and Klumpes (US Patent No. 4,068,111) as applied to claim 1 above, and further in view of Thelen et al. (US Patent No. 6,396,020).

In regard to **claims 2 and 3**, it is unclear whether Valley et al. or Klumpes et al. uses gas shielded arc welding. However, it would have been obvious in the art to use a gas metal arc welding in the process of Valley et al. because Thelen et al. teaches that the weld containment device for welding rails which utilizes for gas-arc welding (column 1, lines 23-26) in order to reduce the repair time as such is a quicker way of creating a molten metal as compared with a conventional technique such as induction heating.

Similarly, in regard to **claims 22 and 23**, as stated in regard to claim 3, Thelen et al. teaches the ability to repair rails using gas metal arc welding (inert gas arc welding) *which is a high temperature, fusion enabling process*.

4. Claims 4-5, 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valley et al. (US Patent No. 6,515,249), Thelen et al. (US Patent No. 6,396,020), Moller et al. (US Patent No. 4,875,657) and Klumpes (US Patent No. 4,068,111) as applied to claim 2 or 3 above, and further in view of Irie et al. (US Patent No. 5,704,570).

Valley et al., Klumpes and Thelen et al. teach the method as applied to claims 1 and 3 above. **Claims 4, 5** differ from the references in calling for the weld material to be high carbon electrode with 0.55 - 0.95% carbon. However, it would have been obvious in the art that the welding electrode should be a high carbon alloy because Irie et al. teaches a method of welding high carbon rails where the carbon composition of the rails and the electrode is almost the same in containing between 0.70 and 0.82% weight percent carbon (column 4, lines 27-49).

Regarding **claim 18**, while it is unclear whether Valley et al. or Thelen et al. use a solid weld electrode for gas-arc welding, it would have been obvious in the art that the electrode would be solid because Irie et al. teaches a method of welding rails using a solid high carbon electrode.

In regard to **independent claim 24**, as applied to claim 1, Valley et al. teach a method of repairing a rail (1) by first identifying the rail defect (2) and then removing a portion of the defect (2) using a cutting vehicle (15) and then welding the abutting section together to bond the rail (column 3, lines 22-60) and Thelen et al. teaches a similar method of welding a rail where blocks (310) conform to the profile of the rail (28)

for the purpose of containing the molten metal deposited (in the gap) as the weld progresses (column 5, lines 28-36) where the device is suitable for gas-arc welding which is synonymous to gas shielded arc welding with inert gas. This claim differs from the references in calling for a molten weld filler material with high carbon content. However it would have been obvious in the art that the molten metal would have a carbon content of about 0.2% to 1.0% by weight because Irie et al. teaches a method of welding high carbon rails where the carbon composition of the rails and the electrode is almost the same in containing between 0.70 and 0.82% weight percent carbon (column 4, lines 27-49). Additionally, while Valley et al. does not specifically teach maintaining continuity in the base and a portion of the web of the rail it would have been obvious that a defect in the head would only require a portion of the head to be removed (maintaining continuity in the base and a portion of the web) because Klumpes teaches a method of repairing defects in thick metal work-pieces where the area surrounding the defect is removed and filled with molten material (column 1, lines 58 to column 2, line 19). Moreover, it is known in the art that to repair a defect in the head of a rail only a portion of the head needs to removed as exemplified in the teachings of Moller et al. as applied to claim 1 in numbered paragraph 2 above.

In regard to the ***amendment***, the removal of the defect in the modified version of Valley et al. is done mechanically (either by cutting of Valley et al. or boring of Klumpes) where there is no disclosure of altering the parent metal of the rail it is reasonably assumed that the parent metal is preserved. Additionally, gas-arc welding is a high temperature process which causes molten melt to fuse with the rail.

5. Claims 8, 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valley et al. (US Patent No. 6,515,249), Moller et al. (US Patent No. 4,875,657) and Klumpes (US Patent No. 4,068,111) as applied to claim 1 above, and further in view of Irie et al. (US Patent No. 5,704,570).

In regard to **claim 8**, Irie et al. teaches that it is important for the weld material to have almost the same carbon content as the base material in order to maintain the fine pearlite structure (column 4, lines 27-49).

Valley et al., Klumpes and Moller et al. teach the method as applied to claim 1 above. **Claims 16 and 21** differ from the references in calling for the weld material to be high carbon electrode with 0.55 - 0.95% carbon. However, it would have been obvious in the art that the welding electrode should be a high carbon alloy because Irie et al. teaches a method of welding high carbon rails where the carbon composition of the rails and the electrode is almost the same in containing between 0.70 and 0.82% weight percent carbon (column 4, lines 27-49).

6. Claim 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valley et al. (US Patent No. 6,515,249), Moller et al. (US Patent No. 4,875,657) and Klumpes (US Patent No. 4,068,111) as applied to claim 1 above, and further in view of Morlock (US Patent No. 5,773,779).

Valley et al. , Klumpes et al. and Moller et al. teach the method as applied to claim 1 however fail to specifically teach reducing the heat introduced by the molten

metal, therefore minimizing the annealing effect in the heat affected zone. However, it would have been obvious in the art to control the welding operation with parameters that would reduce the heat input and minimize the annealing effect because Morlock teaches a method of welding a rail where the speed is controlled to reduce the amount of heat being put into the weld which aids in maintaining adequate hardness levels (i.e. minimal annealing effect) (column 14, lines 52-60).

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valley et al. (US Patent No. 6,515,249), Thelen et al. (US Patent No. 6,396,020), Moller et al. (US Patent No. 4,875,657), Klumpes (US Patent No. 4,068,111) and Irie et al. (US Patent No. 5,704,570) as applied to claim 18 above, and further in view of Caldwell (US Patent No. 4,229,643).

Valley et al., Thelen et al., Klumpes and Irie et al. teach a method of repairing rails using a solid welding electrode. Claim 19 differs from the references because none of the teachings specifically call for treating the electrode to reduce the hydrogen content. However it would have been obvious in the art to keep the hydrogen in the welding electrode to a minimum because Caldwell teaches a welding electrode (with manganese, silicon and nickel) and the importance of holding the hydrogen content to minimum to prevent hydrogen embitterment (column 11, lines 60-69).

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moller et al. (US Patent No. 4,875,657) in view of Irie et al. (US Patent No. 5,704,570).

The following is a quote from the MPEP (Section 2113 – Product-by-Process Claims): "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Moller et al. teach a method of repairing a rail (which has a head, web and base) where a gap is formed by pouring molten material over the rail head to remove the flaw; then additional molten weld material is deposited into the gap and allowed to cool and solidify. Moller et al. teaches removable mould halves (1 and 2) which conform to the profile of the rail are positioned on the rail surrounding the defect (column 2, lines 20-23). The process of Moller et al. simply removes the portion of the head with defect and maintains the continuity of base and the web. This claim differs from the references in calling for the weld filler material to have a high carbon content which is similar to the carbon content of the rail. However, it would have been obvious in the art to use a weld filler material with high carbon content which is similar to the carbon content of the rail because Irie et al. teaches a method of welding high carbon rails where the carbon composition of the rails and the electrode is almost the same in containing between 0.70 and 0.82% weight percent carbon (column 4, lines 27-49). Although the process of Moller et al. does not positively teach forming a gap by “slotting” the rail head, this

limitation fails to distinguish structurally from the rail head of Moller where a gap is formed by pouring molten metal onto a rail head.

In regard to the **amendment**, the removal of the defect by molten metal is taken to be a mechanical process, as machinery is necessary to provide molten metal at such an elevated temperature. Additionally, as there is no disclosure of alternating the metallurgy of the parent metal, it is reasonably assumed that the metallurgy of the parent metal is preserved. However, as noted above this is a product by process claim and the process steps do not structurally distinguish the final product as set forth above (MPEP 2113). As noted above it is the Examiner's position (and a natural property of molten metal) that fusion will occur between the molten metal and the parent metal as the process occurs at an elevated temperature where the molten metal is hot enough to first liquefy and remove the defect (although Moller et al. is not specifically concerned with the particular steel, steels do not melt until at least 1200ºC, i.e. an elevated temperature enabling fusion).

9. Claims 1, 2, 3, 10-12, 14, 15, 18, 20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sauron et al. (US Publication 2002/0125216, ***newly cited reference***) in view of Klumpes et al. (of record).

Sauron et al. teach a method of repairing a metal rail 13, which rail includes head, upright web and base sections (see figure 6), said method comprising the steps of: a) identifying and locating a defect in the metal rail (paragraph [0017]); where exposed parent metal of said rail in opposed, substantially parallel walls and a floor 16

extending there between, form a void and a rail-void interface at said walls and floor, while maintaining continuity of the base and at least a portion of the web of the metal rail (see figures 3 and 4); c) filling the void with molten metal; and d) causing the molten metal and the metal rail at the rail-void interface to bond by fusion of said molten metal to said parent metal when said molten metal and rail are at a sufficiently elevated temperature to enable fusion (paragraph [0052]).

This claim differs from the reference in calling for the mechanically removing the defect, where Sauron et al. is silent regarding removal of the defect. However, Klumpes teaches a method of repairing defects in thick metal work-pieces where the only area surrounding the defect is removed by boring and then filled with molten material (column 1, lines 58 to column 2, line 19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to remove the defect mechanically because a simple mechanical process is more cost effective, well known and controllable compared to chemical or other removal processes.

In regard to **claims 2 and 3**, Sauron et al. teaches this method uses gas shielded arc welding to apply the molten metal (paragraphs [0001-0002]).

In regard to **claims 10-12**, Klumpes et al. teaches the removal of the defect may be done by milling (i.e. machining, cutting or grinding).

In regard to **claims 14 and 15**, Sauron et al. show a weld root which is bevel shaped or J-shaped (figures 3 and 4) and Klumpes et al. teaches a making a cavity (4, figure 2) with that would be considered beveled or J-shaped.

Regarding **claim 18**, Sauron et al. use a solid weld electrode (LINCOR 33) for gas-arc welding (paragraph [0002]).

In regard to **independent claim 20**, as noted above this is a product by process claim. It is the position of the Examiner that the resulting rail head repair from the process of Sauron et al., described above, is structurally and patentability indistinguishable from this claimed railroad rail head repair.

In regard to **claims 22 and 23**, as stated in regard to claim 3, Sauron et al. teaches the ability to repair rails using gas metal arc welding (inert gas arc welding) *which is a high temperature, fusion enabling process*.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sauron et al. (US Publication 2002/0125216, ***newly cited reference***) in view of Klumpes et al. (of record) and Irie et al. (of record).

In regard to **independent claim 24**, as applied to claim 1, Sauron et al. teach a method of repairing a rail by a) identifying and locating a defect in the metal rail (paragraph [0017]); where exposed parent metal of said rail in opposed, substantially parallel walls and a floor 16 extending there between, form a void and a rail-void interface at said walls and floor, while maintaining continuity of the base and at least a portion of the web of the metal rail (see figures 3 and 4); c) filling the void with molten metal; and d) causing the molten metal and the metal rail at the rail-void interface to bond by fusion of said molten metal to said parent metal when said molten metal and rail are at a sufficiently elevated temperature to enable fusion (paragraph [0052]).

This claim differs from the reference in calling for the mechanically removing the defect while preserving the parent metal, where Sauron et al. is silent regarding removal of the defect. However, Klumpes teaches a method of repairing defects in thick metal work-pieces where the only area surrounding the defect is removed by boring and then filled with molten material (column 1, lines 58 to column 2, line 19) which is a simple process for removing a defect and as there no disclosure in either of the references of altering the parent metal of the rail it is reasonably assumed that the parent metal is preserved.

This claim now differs from the references in calling for a molten weld filler material with high carbon content (where Sauron et al. recognizes the importance of carbon content of the rail in determining the electrode but is silent regarding the amount see paragraph [0034] of Sauron et al.). However it would have been obvious in the art that the molten metal would have a carbon content of about 0.2% to 1.0% by weight because Irie et al. teaches a method of welding high carbon rails where the carbon composition of the rails and the electrode is almost the same in containing between 0.70 and 0.82% weight percent carbon (column 4, lines 27-49); as well known in the welding art the filler metal should be similar to that of the parent metal to create a superior weld.

Allowable Subject Matter

Claims 6 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed July 15th 2008 have been fully considered but they are not persuasive. The addition of weight percentage in regard to the content of the electrode is understood and the 112 rejection has been withdrawn. The rejection over the prior art of record stands as applicant's amendments and arguments are not persuasive. Specifically, applicant argues that Moller et al. is an aluminothermic process and does not describe the specific steel alloys or their interaction with the rail material. However, this is inconsequential because neither specific steel alloys nor processes are recited in the rejected claims. Moreover, it is the Examiner's position that fusion would naturally occur between the molten metal and parent metal as the heat from the molten metal would naturally melt the surface of the parent metal causing fusion of the metals. This is a reasonable assumption taken in combination with the fact that the molten metal (thermite) of Moller et al. is hot enough to melt and remove the defective part of the rail prior to settling and solidifying.

In regard to applicant's arguments against the obviousness rejections (for at least claim 1), specifically the statement that Moller et al. teaches away from the present invention, this is not persuasive because as the specific mode of gap/void formation is not limited to anything more than "removing the defect and the metal material surrounding the defect", the process of Moller et al. embraces this limitation as no machining or cutting of the parent metal is required by the claim. The specific structure of the gap (walls and floor) is taken to be embraced by Klumpes (as described in the

rejection, the cylindrical bore has an infinite number of parallel walls, with a floor there between). The argument that Klumpes fills the cavity with cast iron is irrelevant as this teaching is not imported from Klumpes, only the desirability to repair a defect in a metal workpiece by first cutting out the only section of the workpiece with the defect, and one of ordinary skill in the art would readily appreciate that filling a gap in a steel rail with cast iron would result in a defective rail.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., slotting and welding a steel rail head) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In regard to the argument against claim 7, applicant admits that Valley et al. teaches a weld free of inclusions. In regard to claims 10-14, in this combination the Moller reference used to show that a only a portion of the rail head needs to be removed and not the entire section of the rail, and Klumpes shows that the mechanical removal of a defect by other methods such as boring (grinding/milling) is known in the art.

In regard to claims 2, 3 and 22-23, the Examiner appreciates that the successful arc welding of railroad rails is not an easy task however has taken the position that one of ordinary skill in the art, reading all of the prior art references cited, would have readily appreciated that the claimed process, including preserving the parent metal and fusion

of the weld materials therewith, would have been an obvious combination of known methods and techniques at the time of the invention. The removal of a defect while maintaining continuity in a portion of the rail and filling the void with molten metal is well known in the art to result in an effective rail repair as exemplified by Moller et al. The specific mode of removing the defect would have been obvious in view of Klumpes, and the use of GMAW to apply the molten metal is taught in the reference (Valley et al.). Therefore, all of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

In regard to claims 4 and 5, while the majority of the references are not particularly concerned with the steel used, the Irie et al. reference teaches the desirability to have a matching composition for the electrode. As there are a wide variety of steel alloys to choose from, each with their own advantages and disadvantages, one of ordinary skill in the art at the time of the invention could have used routine experimentation in the art to determine the optimal rail steel. Therefore the use of a particular rail or electrode material, absent any showing of unexpected result, cannot *per se* impart patentability to method.

The arguments in regard to claims 6 and 25 are found persuasive and the rejection has been withdrawn. Specifically, as no teaching has been discovered, there is no motivation or teaching to use the claimed electrode composition in the method of the references cited.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. P. D./
Examiner, Art Unit 1793

/Kiley Stoner/
Primary Examiner, Art Unit 1793